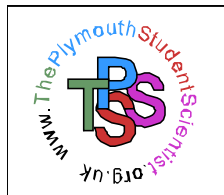


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# **“Does he know I’m his brother?”**

## **A Multi-Method Inquiry into Sibling Relationships Involving Children with Disabilities**

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### **Abstract**

A mixed method approach was used to investigate the impact of disability and family-size on sibling relationships. The quantitative component used a questionnaire to analyse 191 sibling dyads in terms of companionship, empathy, teaching / caring, rivalry, aggression / conflict, and avoidance. Lower levels of positive behaviours and higher levels of negative behaviours were reported when one of the children was disabled. Non-disabled children displayed more positive and less negative behaviour towards their disabled siblings in three-child-families, compared with those in two-child-families. The qualitative component consisted of interviews with four families and the data was analysed using a grounded theory approach. The disability’s manifestation, the non-disabled child’s development and the familial situation were all identified to influence the relationship quality.

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## **Ethical Statement**

Ethical approval was gained from the School of Psychology Ethics Committee at the University of Plymouth, and their ethical guidelines were adhered to. The participating schools were fully briefed about the nature of the study and given all the materials that would be sent to families if they consented. All participants were fully informed of the purpose of the research and their right to not participate in the study. They were also informed of their right to withdraw their data from the study at a later date without justification. Although the research was an emotive topic for some families, no psychological harm was anticipated as the participants were completing the questionnaires in their own home, under no pressure to participate. The interview participants volunteered to be interviewed after completing the questionnaire and so were fully aware of the topics that were of interest. Parents were given the option of reading the interview schedule to be used with their child and specifying any questions or topics they did not want to be asked or discussed.

All participants were made aware that they did not have to answer any questions or discuss any topics that they were not comfortable or happy to. They were also informed of their right to stop the interview at any time, and demand their data be withdrawn from the study and deleted, without justification. All participants were aware that the interviews were being audio recorded. Recordings of the interviews were used solely for transcription purposes and were deleted immediately following. No identifiable information was included in the transcriptions.

The questionnaires were also confidential and anonymous. The signed consent forms were removed from the questionnaires when they were returned.

## **Data Collection**

The named researcher solely collected all data for both the quantitative and qualitative components of this study.

## **Acknowledgements**

The researcher would like to thank Dave Rose, the project supervisor, as well as Julie Griffin for her useful guidance with the qualitative component of this study. The researcher would also like to thank the schools that sent out questionnaires and especially the families who participated.

## **Introduction**

The sibling relationship is the longest lasting and most constant, intimate and powerful relationship of an individual's life (Stoneman & Brody, 1993). This relationship typically out-lives friendships, develops long before marriage and lasts beyond parental death (Volling & Blandon, 2003). Not only do siblings spend more time together during childhood than with any other family member (Sanders, 2004), it is even proposed that it is impossible to psychologically dissociate oneself from a sibling, as can be done with former friends and spouses (Ross and Milgram, 1982). Despite this, in terms of research, the sibling relationship is one of the most neglected (Noller, 2005).

## **The Importance of Sibling Relationships**

Children already spend equal time interacting with their siblings as they do with their mothers by the age of one year (Lobato, Faust & Spirito, 1988). Therefore siblings substantially contribute to each others positive development, as well as the development of undesirable attributes (Sanders, 2004). Sibling relationships play an important role in peer relationships (Lamb & Sutton-Smith, 1982) and can be viewed as preparatory for the establishment of friendships (Sanders, 2004) and 'central to healthy social development' (Furman & Buhrmester, 1985). The social skills that are learnt through

playing and arguing, joking and bickering, caring and fighting, with siblings are a significant part of the social relations experienced both inside and outside of the family (Edwards, Hadfield, Lucey & Mauthner, 2006). The institutional type structure of the family means that the sibling relationship is guaranteed to survive during childhood (Furman & Burmester, 1985). This permits frequent conflict expression, which provides children with opportunities to learn successful conflict resolution strategies in addition to the rules of social interaction.

The behaviour of one sibling can influence the subsequent behaviour and well-being of the other. A child that grows up with a sibling who behaves aggressively towards them is more likely to themselves become aggressive (Sanders, 2004). In addition to this risk, children with aggressive siblings report lower levels of self – esteem (McHale & Gamble, 1989). There is evidence for negative sibling social interaction being a risk factor in the development of delinquency in adolescence (Sanders, 2004).

Intimacy in sibling relationships has been found to be linked to positive adjustment, and sibling conflict linked to poorer adjustment (Kim, McHale, Crouter & Osgood, 2007).

Poorer childhood sibling relationships are predictive of both the occurrence of major depression and the frequency of use of mood-altering drugs in adulthood; the quality of childhood relationships with parents did not predict either (Waldinger, Valliant & Orav, 2007).

### **Disability**

Growing up with a sibling with a disability may significantly change daily life (McHale & Gamble, 1989). One family member having a disability places unusual demands on all members (Simeonsson & McHale, 1981). Children with disabilities often need a higher level of care and attention than other children, thus almost inevitably resulting in parental differential treatment, which has been shown to have negative consequences for children, including weakening of the sibling relationship (Brody, Stoneman & Burke, 1987, as cited in Sanders, 2004). However to attribute this finding to families with a disabled child may not necessarily be valid. Higher levels of parental warmth to one

child may be seen by the other child as favouritism, however higher involvement in care, as is likely to be the case with disabled children, may be seen as an imposition (McHale & Pawletko, 1992). It is the child's subjective experience and interpretation, rather than the actual different treatment that is important (Sanders, 2004). Nonetheless, the care needs of the disabled child takes parents' time away from siblings and this is likely to have an impact. Many children envy their sibling with a disability for the extra attention they receive (Seligman, 1983). This, along with the awareness of lost resources due to the financial demands they place on the family, can lead to feelings of anger, which can be additionally fuelled by feelings of being ignored and unappreciated (Seligman, 1983). Not being able to share these feelings could lead to psychological maladjustment (Von Salisch, 2000).

Another result of the increased level of care required by disabled children is that siblings take on care-giving responsibilities. Children with disabilities spend the same amount of time with their siblings as non-disabled children; however more of this time is spent in care-giving activities (McHale & Gamble, 1989). Burke and Montgomery (2003) argue that it is unlikely that these siblings will go 'unscathed' by it. Travis (1976, as cited in Seligman, 1983) reports that through their care need some children enslave their siblings and that being burdened with physical care seems to be common. A danger here is that these children's identity may become inseparable from that of their disabled sibling (Burke & Montgomery, 2003). All these factors are likely to impact on the relationship between disabled and non-disabled siblings.

Child psychopathology is developmentally dangerous to younger siblings, causing increased risk of psychopathology, difficulty maintaining social relationships, and rejection of siblings as role models (Sanders, 2004). Children with disabled siblings scored worse on measures of depression, anxiety, perceived social acceptance and perceived conduct than children with non-disabled siblings (McHale & Gamble, 1989). However, Seligman (1983) argues that it is a mistake to conclude that children are necessarily adversely affected by having a sibling with a disability. Many children respond with warmth and care and sometimes are so positively influenced by the

experience that their careers are based on helping people with disabilities (Seligman, 1983). In contrast to the findings reported thus far, Dyson (1989) argues that children with disabled siblings are no different to children with non-disabled siblings in terms of behaviour problems, self-concept, and social competence. Brothers of disabled children did differ from brothers of non-disabled children on some psychological dimensions, but in positive ways. They were less aggressive and hyperactive and displayed fewer fantasising, deviant and isolated behaviours (Dyson, 1989). McHale and Gamble (1989) found that boys with a disabled sibling undertake the same amount of care-giving as girls with a non-disabled sibling, and suggest that this may be a 'liberating experience' for boys.

In order to investigate the effect of having a disabled sibling and the non-disabled children's thoughts on it, Connors and Stalker (2003) interviewed 24 siblings of children with disabilities. When asked to describe their sibling, most children did not include descriptions or reference to disability. Most of the children interviewed used mainly positive terms to describe their sibling and talked about them with affection. Some of the children felt some level of responsibility for their sibling, but most were not actively involved in care-giving. Help they did give was usually voluntary and what older siblings would quite typically do for younger siblings (Connors & Stalker, 2003). Only two of the 24 children interviewed said they regularly helped. Children reported "ups and downs" with their siblings, but Connors and Stalker report these to be typical of any siblings. Ambivalent feelings towards siblings were present among some children. Some families appeared to have the view that if one child could not participate in an activity then none of the family would. Connors and Stalker (2003) suggested that 'the children were adversely affected by the same barriers' as their disabled sibling. However, most of the children did not report being restricted in the activities that they could pursue. 18 of the 24 children interviewed did not report receiving less of their parents' time because of having a sibling with a disability. Some felt that other people, such as other relatives, paid greater attention to their sibling and while they could rationalise this, still felt it an injustice. Most of the children did not report an impact on friendships. Bullying, however,

had been an issue for some of the children. Most of the children reported worrying about their sibling with the disability, in particular their health and physical well-being. Also of concern to them was their sibling being bullied or taken advantage of. This research provides insight into the practical elements of having a sibling with a disability, and the effect this has on the non-disabled child's life, such as care-giving, family activities, parental time, and friendships. Their findings suggest that there would be an effect on the quality of the sibling relationship, but they do not explore this in any detail. While Connors and Stalker (2003) report that the children talked affectionately about their sibling, they do not investigate further about the relationship that the children have.

### **Disabled Children's Sibling Relationships**

Given the known importance of sibling relationships it is surprisingly difficult to find research on sibling relationships involving children with disabilities. The research that does exist in this area mainly focuses on the impact on the non-disabled sibling as an individual rather than on the impact on the relationship between the two children (Sanders, 2004). One study, which did look into the actual relationship, found that sibling relationships involving children with Attention Deficit Hyperactivity Disorder (ADHD) contain higher levels of conflict, but levels of warmth are unaffected (Mikami & Pfiffner, 2007). This study only investigates conflict and warmth, and does not reveal anything about other aspects of sibling relationships, such as whether the children have fun together, teach each other things, are embarrassed by or avoid one another. Another problem with this study is that Mikami and Pfiffner (2007) used some families with more than two children, but only looked at the relationship of the sibling closest in age to the child with ADHD. Grouping families of two children and more than two children together may obscure results. Sibling relationships do not take place in isolation and therefore it seems important to question whether the presence of another sibling may alter the relationship of other siblings.

Disability alters typical aspects of sibling relationships. Most children feel that older siblings have more status and power than younger siblings (Furman & Buhrmester,



1985). As children get older their roles typically become more symmetrical toward adolescent and adult friendships (Stoneman & Brody, 1993). This is not the case when one sibling has a disability. If the sibling with the disability is older, then the younger sibling will eventually surpass the physical, cognitive, social or emotional competencies of their older sibling (Stoneman & Brody, 1993) and the typical roles would be reversed. If the child with the disability is the younger one, the relationship will become less, rather than more, symmetrical (Stoneman & Brody, 1993) as the older child develops, increasing the gap.

The power and impact of sibling relationships is evident across the lifespan and Cicerelli (1989) found that a feeling of closeness to a sister is important to the older person's well-being, whether male or female (although the same was not found for closeness to brothers). Adults with siblings with Autism or Down Syndrome report spending less time with their siblings and lower levels of closeness (Orsmond & Seltzer, 2007), which could suggest lower levels of well-being. The extent to which the non-disabled individual feels rewarded by having a disabled sibling is associated with a closer relationship (Hodapp & Urbano, 2007). Closer adult sibling relationships amongst individuals with either Down Syndrome or Autism and their brother or sister were associated with more frequent and lengthy contact (Hodapp & Urbano, 2007). Individuals with schizophrenia were found to have higher levels of life satisfaction when they had a closer and more supportive sibling relationship (Smith & Greenberg, 2007). This research all demonstrates the longitudinal importance of sibling relationships. Yet sibling relationships are not a subject of training amongst professionals working with children and their families, such as social workers, health visitors and teachers (Edwards, Hadfield, Lucey & Mauthner, 2006). The more that is known about the nature of sibling relationships when a child has a disability, the more professionals and families should be able to facilitate the quality of the relationship, which is likely to have a great impact on the lives of those concerned. Sibling relationships are able to compensate for other social relationships (Sanders, 2004). This can be very important for disabled children who may not have many

opportunities for interaction with other children, or who are not successful at interacting with peers.

### **The Effect of Family Size**

Siblings of children with disabilities have a higher self concept of both physical appearance and popularity when they also have a non-disabled sibling (Dyson, 1989).

They also show more social competence the larger the family size (Dyson, 1989).

College students reported growing up with a sibling with a disability more stressful when they came from two-child-families, in comparison to larger ones (Grossman, 1972, as cited in Seligman, 1983). In contrast, Gath (1974, as cited in Simeonsson & McHale, 1981) found lower adaptation of siblings of children with disabilities as family size increased. Also uncovered in this research was that the most adversely affected were girls from large families (Gath, 1974, as cited in Simeonsson & McHale, 1981).

Simeonson & McHale (1981) attribute this to the extra care-giving responsibilities that were likely to have been placed on these girls; the large families in the study were of low socioeconomic status, which has been shown to be associated with higher care-giving demands.

Adults with a sibling with a condition such as autism are often expected to take on responsibility for them when parents are no longer able to (Orsmond & Seltzer, 2007), and this is something that siblings are likely to be aware of from a young age. When a sibling's condition results in needing life-long care, children may be anxious about the future (Seligman, 1983). In addition to more siblings resulting in less care-giving during childhood, it is also likely to lessen the perceived future burden when the parents are no longer able to care for the sibling with a disability. While family size has been shown to affect the non-disabled sibling in terms of their own development and adjustment, it is not known what, if indeed any, effect family size has on the siblings' relationships with one another.

Care-giving is a common theme in the literature when discussing disability and family size. However, it is possible that extra siblings in a family could have added benefits to

the children, other than sharing the care-giving. Children report feeling that their friends do not understand the effect of having a disabled sibling because they had not had this experience (Connors & Stalker, 2003), suggesting that they were not able to discuss feelings about it with them. The presence of another non-disabled sibling may provide someone with whom they can discuss their feelings. Jenkins (1992) found that children living in disharmonious homes with strong sibling relationships do not exhibit the high level of symptoms that children without strong sibling relationships do. This finding suggests that a strong sibling relationship can act protectively against psychological disturbances that stressful experiences can result in. This may be applicable to the experience of having a sibling with a disability.

### **The Present Study**

This study uses a mixed method approach to investigate sibling relationships involving disabled children. The first phase of the study is a quantitative investigation into whether children's sibling relationships differ when one of the children within a dyad has a disability. The relationship is assessed in terms of both positive and negative behaviours displayed by the older sibling towards the younger sibling. This study investigates the level of companionship, empathy, teaching / caring, rivalry, aggression / conflict, and avoidance individually. This will allow for greater specificity about the effect of disability on sibling relationships.

The second goal of this study is to investigate the effect of the existence of a third sibling. It is possible that in families with a disabled child and more than one non-disabled child, the non-disabled siblings, could work as an 'in-house support group'. Having another sibling is likely to provide someone to talk to who has shared the same experiences. The study investigates whether having both a non disabled and disabled sibling will improve the relationship between the two non disabled siblings, compared to children in other three-child-families because it adds to their shared experience. It also questions whether the children's relationship with their disabled sibling will differ from children in two-child-families. It seems plausible that the children may invest less in the

relationship with the disabled child due to having another sibling, or alternatively that having someone to share the experience with will have a positive influence on the relationship with the disabled child. Due to the limited research in this area a directional hypothesis is not proposed.

Specifically, the first part of this study asks three research questions: (i) Does a sibling dyad containing a child with a disability effect the levels of companionship, empathy, teaching / caring, rivalry, aggression / conflict, or avoidance in the children's relationship? (ii) Does family-size affect this? (iii) In three-child-families where one has a disability, does the relationship between two non-disabled siblings differ from two siblings when the third child is also non-disabled?

The second phase of the study is a qualitative component consisting of interviews with a sub-sample of families. This is in order to hear the family's views about their experiences of sibling relationships involving children with disabilities, as well as to discover reasons for the differences identified because little is known about the factors that influence sibling relationships involving disabled children (Stoneman & Brody, 1993). Semi-structured interviews and a Grounded Theory approach to analysis (Glaser & Strauss, 1967, as cited in Strauss & Corbin, 1998) will be used for this component of the study. Using the two methods will provide multiple forms of data, obtained through both predetermined and emerging methods, allowing for statistical and text analysis (Creswell, 2003). It is anticipated that different themes could emerge from the families in the more open phase of the investigation, than elicited by the questionnaires, because researchers are not necessarily interested in that which is important to families. In addition to providing further insight, the use of two separate methods will reveal the efficacy of each of the methodologies for studying this phenomenon.

## **Method**

### **Quantitative Component**

#### **Participants**

A total of 191 sibling dyad relationships from 123 families were analysed in the study. 725 questionnaire packs were distributed, through 8 schools (5 special and 3 mainstream), and 1 youth club. 169 were returned (23%)<sup>1</sup>. 46 dyads were not included in analyses due to one of the children having dyslexia, dyspraxia or dyscalculia<sup>2</sup>, one of the children being too old or too young<sup>3</sup>, there being more than 3 children in the family, the children not all living together, or both children in the dyad being disabled<sup>4</sup>. There were a total of 30 two-child-families including a disabled child and 41 not including a disabled child. There were 28 3-child families including a disabled child and 24 not including a disabled child. This gave a total of 191 sibling dyads, 44 where the older child in the dyad is disabled (condition 1), 37 where the younger child in the dyad is disabled (condition 2), and 110 where neither are disabled (condition 3).

The main disabilities were Autistic Spectrum Disorder (33), Learning Disability (25), Attention Deficit Hyperactivity Disorder (13), Sensory Impairments (13), Aspergers Syndrome (9), Speech and Language Impairments (3), Heart Conditions (3), Tourettes (2), Global Developmental Delay (2), Downs Syndrome (2) and Cerebral Palsy (2). Many of the children had more than one disability. The severity of disability varied amongst children.

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<sup>1</sup> These questionnaires went out to single-child families and families with more than 3 children who could not participate and multiple packs went to the same families, which helps account for the low response rate.

<sup>2</sup> Children with dyslexia, dyspraxia and dyscalculia were excluded from the disability condition due to the difference in nature and severity to the others. It was also excluded from the non-disabled condition.

<sup>3</sup> Only children between the ages of 3 years and 18 years were included

<sup>4</sup> It was originally intended for these to be included in the analysis, but the group was too small.

**Table 1**

**Demographic Information of the Children in the Participating Families**

	Oldest Child Age (years)	Middle Child <sup>5</sup> Age (years)	Youngest Child Age (years)	Age Spacing <sup>6</sup> (months)	Gender
2-child- family (dis)	M=12.1, SD=3.52 R=5.6–18.2	N/A	M=8.3, SD=2.94 R=3.6–12.9	M=41.5, SD=23.61 R=16–35	Same= 14 Mixed= 16
2-child- family (non)	M=10, SD=3.13 R=5–18.8	N/A	M=6.6, SD=2.94 R=3.2–10.8	M=39.7, SD=21.67 R=12–97	Same= 17 Mixed= 24
3-child- family (dis)	M=12.6, SD=3.52 R=6.8–18.8	M=11.1, SD=4.13 R=4.8–18.2	M=8.8, SD=3.43 R=3.1–15	M=49.6, SD=30.15 R=12–153	Same= 8 Mixed= 20
3-child- family (non)	M=13, SD=3.17 R=7.7–17.8	M=9.9, SD=3.03 R=4.8–14.4	M=7.5, SD=2.61 R=3.3 – 11.3	M=52.7, SD=31.16 R=11–152	Same= 8 Mixed= 16

Table 1 shows the range, mean and standard deviation of the oldest, middle (where applicable) and youngest child in the families, the age-spacing, and gender of the children.

Of the two-child-families, in 15 the older child was disabled, and in 15 the younger child was disabled. Of the three-child-families, in 11 the older child was disabled, in 4 the middle child was disabled, in 4 the younger was disabled and in 9 two of the children were disabled.

<sup>5</sup> Because the questionnaires refer to sibling dyads the middle children take the role of both older and younger in the dyads so their behaviour toward their younger sibling is reported as well as their older siblings' behaviour toward them. The ages have been presented in this way to give a 'picture' of the participating families and to prevent children being included more than once. The means for older members of dyads in 3-child-family (dis) is 11.85 and younger 8.7. The means for older members of dyads in 3-child-family (non) is 11.45 and younger 9.95. These means are actually closer to those of the two-child-families.

<sup>6</sup> This is the average age-spacing between all sibling dyads, so oldest-youngest, middle-youngest and oldest-middle.

## **Procedure**

The participating schools sent questionnaire packs home with their pupils. The packs contained a letter to parents explaining the research requirements and inviting them to participate. It also informed them of all ethical issues, such as the right to withdraw and confidentiality. There was then a consent form for them to sign if they agreed to participate. The packs contained three copies of an adapted version of Schaefer and Edgerton's (1981) *Sibling Inventory of Behaviour* (Volling & Blandon, 2003). Parents of two children only completed the copy labelled 'oldest and youngest children'. Parents of three children also completed the copies labelled 'middle and youngest children' and 'oldest and middle children'. A brief demographic questionnaire followed asking whether the children all lived at home together, and the dates of birth and gender of each child. It also asked whether the child had a physical disability and/or any other form of disability. The questionnaire pack ended with a debrief thanking the participant and explaining the aims of the research. Contact details for the researcher were provided in case anyone had any concerns or questions, or wanted their data to be removed from the study. There was also a request for volunteers to contact the researcher if they were interested in being interviewed on the topic. The packs contained a sealable envelope marked 'Private and Confidential' for the questionnaires to be returned in. Participants had the option of returning the questionnaires to the school or directly to the researcher. The same method was used with the Youth Club.

## **Sibling Relationship - *Sibling Inventory of Behaviour***

The Sibling Inventory of Behaviour (SIB) assesses the relationship between two siblings on 6 dimensions: companionship, empathy, teaching / caring, rivalry, aggression / conflict and avoidance. 'Companionship' assesses the extent to which the children share secrets, engage in activities with each other and have fun together. 'Empathy' assesses the levels of sympathy, care and concern displayed by the older child towards the younger child. 'Teaching / Caring' assesses how much the older child helps the younger child, through both teaching and caring. High scores on these 3 dimensions mean that

the older child in the dyad displays high levels of positive behaviour towards the younger sibling in the dyad. 'Rivalry' assesses the levels of competition and resentment that exist within the relationships. 'Aggression / Conflict' assesses the levels of antagonism and fighting that exist within the relationship. 'Avoidance' assesses how much the older child is embarrassed by, or avoids, the younger child. High scores on these last 3 dimensions mean that the older child in the dyad displays high levels of negative behaviour towards the younger sibling in the dyad.

The questionnaire consists of 32 statements, such as, "Oldest Child tries to avoid being seen with Youngest Child" and "Oldest Child shares secrets with Youngest Child". The participants are required to respond to the statements on a 5-point Likert scale dependant on its frequency of occurrence; never, not very often, often, very often, always. The questionnaires are completed by parents and responses are chosen based on the older child's behaviour towards their younger sibling within the dyad. One questionnaire was completed per sibling pairing so in two-child-families one questionnaire was completed and in three-child-families three questionnaires were completed. The 6 dimensions of the SIB are reliable across different studies and have good test-retest reliability and internal consistency (Volling & Blandon, 2003). Volling & Blandon (2003) also report "impressive associations" across respondents, which was an important quality for the chosen questionnaire because this study invites either the mother or father to complete the questionnaires and does not gain self-reports from the children as many would be too young and some children's disability would not allow them to perform such a task.

### Qualitative Component

#### **Participants**

Four families were interviewed. They volunteered to participate through responding to the request on the questionnaire debrief. The families were interviewed in the order in which they volunteered and all volunteers were interviewed until it was felt that enough



data had been collected. The final two families that volunteered to participate were not interviewed.

1. The first family to be interviewed was a three-child family. All family members were interviewed. The oldest child is a 19 year old male (Mark<sup>7</sup>), the middle child is a 17 year old male (Stuart), and the youngest child is an 11 year old girl (Amy). The middle child has a diagnosis of Autistic Spectrum Disorder.

2. The second family to be interviewed was a two-child family. The mother and non-disabled child were interviewed. The oldest child is 13 (Peter) and the younger is 10 (Liam). They are both male. Liam has Global Developmental Delay and is a wheelchair user with no speech and very limited understanding.

3. The third family to be interviewed was a three-child family. The mother, father and middle-child were interviewed. The oldest child is a 12 year old girl (Claire) who has Cerebral Palsy, is a wheelchair user and has no speech, but is in the process of learning to use a communication aid. The middle child is a 10 year old boy (Luke) and the younger child is a 5 year old boy (Simon). For the past 18 months Claire has been residing at her school from Monday to Friday during term-time, but lives with her family for the remainder of time.

4. The fourth family to be interviewed was a three-child family. The oldest child is an 11-year-old boy (Michael), the middle child is an 8½-year-old boy (Ben) and the youngest is a 4½-year-old girl (Laura). Ben, the middle child, has Cerebral Palsy, Autistic Spectrum Disorder, Severe Learning Difficulty and Epilepsy. He is a wheelchair user and has no speech. He was moving to a residential school the week of the interview. Only the mother was interviewed.

## **Procedure**

In total 12 interviews were conducted with 4 mothers, 2 fathers, 4 siblings (3 brothers, 1 sister) and 1 disabled child. One mother was interviewed twice to re-visit certain themes

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<sup>7</sup> All names have been changed to pseudonyms and are included for clarity when reading the results section.

in more depth. 11 interviews were conducted at the families' homes and one was conducted at the child's school. Each family member was interviewed individually. The named researcher conducted all of the interviews. Before the interview, participants were made aware of all ethical issues and reminded that the interviews were being audio recorded in order for them to give informed consent. All interviews were semi-structured and flexibly followed an interview schedule of open-ended questions. The schedule was revised after each family. The interview length ranged from 5 minutes to 67 minutes with a mean of 25 minutes<sup>8</sup>. Following the interview all participants were debriefed and thanked for their participation.

## **Analysis**

All the interviews were audio-recorded and fully transcribed. Data collection and data analysis were done simultaneously. The transcripts were subjected to an interpretative theme analysis based on Grounded Theory to understand the phenomenon from the participants' point of view. The technique of line by line coding of the data was employed to identify recurring themes. Throughout this, 'memos' were created where reflections were noted to return to later in the analysis process. Following the initial coding process, these codes were categorised as similarities emerged across the data. The categories were invented to fit the emergence of themes from the data, rather than predetermined categories being imposed on the data. As new themes emerged from transcripts, the interview schedule was revised to allow for more in-depth exploration of these themes. New categories were created to fit new themes that emerged from later transcripts. Some categories were then merged into higher-level categories which became the final categories reported, with the sub-categories representing the first-level categories. Constant comparison revealed the relationships between the higher-level categories.

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<sup>8</sup> This variability was due to interviews being conducted with both adults and children, including one child with ASD.

## **Results**

### **Quantitative Results**

Three two-way between-groups multivariate analysis of variance (MANOVA) were performed to investigate differences in sibling relationships as a result of disability and family size. Six dependent variables were used as measures of sibling relationships: Companionship, Empathy, Teaching / Caring, Rivalry, Aggression / Conflict, and Avoidance. The independent variables were disability and family size. Disability consisted of three groups: Older Child Disabled, Younger Child Disabled, Neither Child Disabled. Family Size consisted of two groups: sibling dyads from two-child-families, and sibling dyads from three-child-families. The first MANOVA included the dyads from the two-child-families and the dyads from the three-child-families consisting of the oldest and youngest children in the family. The second MANOVA again included the dyads from the two-child-families, this time with the dyads from the three-child-families consisting of the middle and youngest children in the family. The third MANOVA included the dyads from the two-child-families and the dyads from the three-child-families consisting of the oldest and middle children in the family. The separate analyses were due to the children from three-child-families being involved in two scores (for example there was a score for the oldest child's relationship with the middle child and with the youngest child).

The data violated the assumptions of normality and homogeneity of variance. Three separate transformations of the data were unsuccessful. Therefore, it is necessary to be more cautious with interpretation. The confidence interval was increased from 95% to 97.5%, by setting the criteria level for statistical significance to  $p < .025$ .

The Games-Howell Post Hoc test was performed on the disability conditions. Due to the size of the sample it was not possible to include gender as a factor in the MANOVA. T-tests were conducted on the three sets of data to look for gender differences. The dyads were split into same gender and mixed gender dyads. The only statistically significant differences were rivalry  $t(103)=3.890$ ,  $p < .001$  and aggression  $t(103)=2.698$ ,  $p = .008$  on

the data set including dyads from two-child families and dyads of the oldest and youngest children in three-child-families. The other two data sets contained no statistically significant differences. Therefore, it was decided that it was reasonable to exclude gender from the MANOVA.

### **MANOVA 1 – Dyads from Two-Child-Families and Dyads of the Oldest and Youngest Children from Three-Child Families**

Table 2: MANOVA table of Between-Subjects Effects

Source	Dependent Variable	Df	Mean Square	F	Sig
Disabled	Companionship	2	6.619	10.231	.000*
	Empathy	2	20.866	20.842	.000*
	Teaching / Caring	2	24.608	44.012	.000*
	Rivalry	2	2.456	4.340	.016*
	Aggression / Conflict	2	7.230	8.521	.000*
	Avoidance	2	1.832	4.210	.018*
Family Size	Companionship	1	.559	.864	.355
	Empathy	1	2.756	2.750	.100
	Teaching / Caring	1	3.607	6.450	.013*
	Rivalry	1	5.707	10.085	.002*
	Aggression / Conflict	1	4.302	5.070	.027
	Avoidance	1	1.433	3.294	.073
Disabled * Family Size	Companionship	2	3.225	4.984	.009*
	Empathy	2	.654	.652	.523
	Teaching / Caring	2	.491	.877	.419
	Rivalry	2	.244	.431	.651
	Aggression / Conflict	2	.312	.368	.693
	Avoidance	2	1.28	2.942	.057

\* significant at the .025 level

### Disability

There was a statistically significant main effect of disability on the combined dependant variables:  $F(2, 190) = 8.5$ ,  $p < .001$ ; Pillai's Trace = .7; partial  $\eta^2 = .35$ . This shows that 35% of the variance in the sibling relationship scores can be explained by disability.

Considered separately, the 6 dependent variables were all statistically significant.

*Companionship*:  $F(2, 99) = 10.23$ ,  $p < .001$ , partial  $\eta^2 = .17$ . This shows that 17% of the variance in companionship in sibling dyads is explained by disability. Post Hoc analysis revealed a significant difference between Older Child Disabled and Neither Child Disabled, mean difference =  $-.96$ ,  $p < .001$ , but not between Younger Child Disabled and Neither Child Disabled, mean difference =  $-.6$ ,  $p = .034$ , or Older Child Disabled and Younger Child Disabled, mean difference =  $-.36$ ,  $p = .388$ .

*Empathy*:  $F(2, 99) = 20.84$ ,  $p < .001$ , partial  $\eta^2 = .3$ . This shows that 30% of the variance in how much empathy a child displays towards their younger sibling can be explained by whether they are disabled or not. Post Hoc analysis revealed statistically significant differences between Older Child Disabled and Younger Child Disabled, mean difference =  $-1.54$ ,  $p < .001$ , and Older Child Disabled and Neither Child Disabled, mean difference =  $-1.38$ ,  $p < .001$ , but not between Younger Child Disabled and Neither Child Disabled, mean difference =  $.17$ ,  $p = .846$ .

*Teaching / Caring*:  $F(2, 99) = 44.01$ ,  $p < .001$ , partial  $\eta^2 = .47$ . This shows that 47% of the variance in teaching / caring levels amongst sibling dyads can be explained by disability. Post Hoc analysis revealed statistically significant differences between Older Child Disabled and Younger Child Disabled, mean difference =  $-1.75$ ,  $p < .001$ , and Older Child Disabled and Neither Child Disabled, mean difference =  $-1.48$ ,  $p < .001$ , but not between Younger Child Disabled and Neither Child Disabled, mean difference =  $.27$ ,  $p = .537$ .

*Rivalry*:  $F(2, 99) = 4.34$ ,  $p = .016$ , partial  $\eta^2 = .08$ . Only 8% of variance in rivalry levels is accounted for by disability. Post Hoc analysis revealed a statistically significant difference between Older Child Disabled and Neither Child Disabled, mean difference =  $.541$ ,  $p < .001$ , but not between Older Child Disabled and Younger Child Disabled, mean

difference = .39,  $p=.292$ , or Younger Child Disabled and Neither Child Disabled, mean difference = .15,  $p=.737$ .

*Aggression / Conflict*:  $F(2, 99) = 8.52$ ,  $p<.001$ , partial  $\eta^2 = .15$ . 15% of the variance on scores of aggression / conflict can be explained by disability. Post Hoc analysis revealed statistically significant differences between Older Child Disabled and Younger Child Disabled, mean difference = .82,  $p=.047$ , but not between Older Child Disabled and Neither Child Disabled, mean difference = .91,  $p=.002$ , or Younger Child Disabled and Neither Child Disabled, mean difference = .09,  $p=.937$ .

*Avoidance*:  $F(2, 99) = 4.21$ ,  $p=.018$ , partial  $\eta^2 = .08$ . Only 8% of variance in avoidance scores is accounted for by disability and post hoc analysis revealed no statistically significant differences between the three conditions. Younger Child Disabled and Neither Child Disabled, mean difference = .68,  $p=.028$ , Older Child Disabled and Younger Child Disabled, mean difference = -.49,  $p=.162$ , and Older Child Disabled and Neither Child Disabled, mean difference = .19,  $p=.304$ .

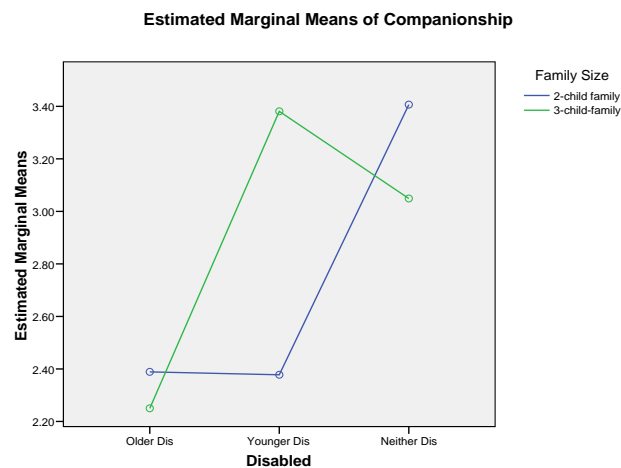
### Family Size

There was not a statistically significant difference between the dyads from two-child families and dyads consisting of the oldest and youngest children from three-child families on the combined dependant variables:  $F(12, 190) = 2.05$ ,  $p=.067$ ; Pillai's Trace=.12; partial  $\eta^2 = .12$ . However, when the dependent variables are considered individually, teaching / caring is higher in the dyads from three-child families than two-child families,  $F(2, 99)=6.450$ ,  $p=.013$ , partial  $\eta^2 = .061$ . Rivalry is higher in two-child-families than dyads from three-child-families,  $F(2, 99) = 10.085$ ,  $p=.002$ , partial  $\eta^2 = .092$ . Only 6% of teaching / caring and 9% of rivalry variation is accounted for by family-size. The other variables did not reach significant differences, however looking at the means shows that companionship is higher amongst siblings from two-child families, and empathy is higher amongst the oldest and youngest children from three-child-families. Aggression / conflict, and avoidance are both lower with the oldest and

youngest children from three-child families, compared to the children from two-child families.

### Interaction

The interaction effect of disability and family size on the dependent variables combined was not statistically significant:  $F(12, 190) = 1.97$ ,  $p = .029$ ; Pillai's Trace = .22; partial  $\eta^2 = .11$ . However, when the dependent variables are considered individually, there is a significant interaction effect of disability and family size on companionship,  $F(2, 99) = 4.984$ ,  $p = .009$ , partial  $\eta^2 = .091$ . 9% of the variance in companionship is explained by the interaction between disability and family-size. Older disabled children display higher levels of companionship towards their younger sibling in two-child-families than in three-child families, as is the case when both children are non-disabled. However, when the younger child is disabled, older non-disabled children display higher levels of companionship towards them when they are from three-child families.



*Figure 1.* Interaction Plot of Disability and Family Size for Companionship

## **MANOVA 2 – Dyads from Two-Child-Families and Dyads of the Middle and Youngest Children from Three-Child Families**

Table 4: MANOVA table of Between Subjects Effects

Source	Dependent Variable	Df	Mean Square	F	Sig
Disabled	Companionship	2	10.764	15.589	.000*
	Empathy	2	10.254	10.466	.000*
	Teaching / Caring	2	11.687	20.641	.000*
	Rivalry	2	1.445	2.412	.095
	Aggression / Conflict	2	3.068	4.371	.015*
	Avoidance	2	1.5	3.700	.028
Family Size	Companionship	1	.496	.719	.399
	Empathy	1	1.195	1.220	.272
	Teaching / Caring	1	1.037	1.831	.179
	Rivalry	1	2.042	3.408	.068
	Aggression / Conflict	1	1.252	1.784	.185
	Avoidance	1	.373	.919	.340
Disabled * Family Size	Companionship	2	3.025	4.381	.015*
	Empathy	2	.147	.150	.861
	Teaching / Caring	2	.029	.052	.949
	Rivalry	2	1.613	2.693	.072
	Aggression / Conflict	2	.934	1.330	.269
	Avoidance	2	3.196	7.884	.001*

\* Significant at the .025 level

### Disability

There was a statistically significant main effect of disability conditions on the combined dependant variables:  $F(12, 200) = 5.868$ ,  $p < .001$ ; Pillai's Trace = .52; partial  $\eta^2 = .26$ . This shows that 26% of the difference in sibling relationship scores is accounted for by



disability. When the results for the dependent variables were considered separately, companionship, empathy, teaching / caring, and aggression / conflict were found to contain statistically significant differences, whereas rivalry and avoidance were not.

*Companionship*:  $F(2, 104) = 15.59$ ,  $p < .001$ , partial  $\eta^2 = .23$ . Post Hoc analysis revealed a significant difference between older child disabled and neither disabled, mean difference =  $-1.18$ ,  $p < .001$ , and younger disabled and neither child disabled, mean difference =  $-.68$ ,  $p = .015$ , but not between older disabled and younger disabled, mean difference =  $-.5$ ,  $p = .198$ .

*Empathy*:  $F(2, 104) = 10.47$ ,  $p < .001$ , partial  $\eta^2 = .17$ . Post Hoc analysis revealed that there was statistically significant differences between older child disabled and younger child disabled, mean difference =  $-1.47$ ,  $p = .001$ , and older child disabled and neither child disabled, mean difference =  $-1.34$ ,  $p < .001$ , but not between younger disabled and neither disabled, mean difference =  $.13$ ,  $p = .881$ .

*Teaching / Caring*:  $F(2, 104) = 20.641$ ,  $p < .001$ , partial  $\eta^2 = .28$ . Post Hoc Analysis revealed significant differences between older child disabled and younger child disabled, mean difference =  $-1.59$ ,  $p < .001$ , and older child disabled and neither child disabled, mean difference =  $-1.46$ ,  $p < .001$ , but not between younger child disabled and neither child disabled, mean difference =  $.13$ ,  $p = .846$ .

*Rivalry*:  $F(2, 104) = 2.412$ ,  $p = .095$ , partial  $\eta^2 = .044$

*Aggression / Conflict*:  $F(2, 104) = 4.37$ ,  $p < .001$ , partial  $\eta^2 = .07$ . Post Hoc analysis revealed statistically significant differences between Older Child Disabled and Younger Child Disabled, mean difference =  $.88$ ,  $p = .025$ , and Older Child Disabled and Neither Child Disabled, mean difference =  $.89$ ,  $p = .008$ , but not between Younger Child Disabled and Neither Child Disabled, mean difference =  $.01$ ,  $p = .996$ .

*Avoidance*:  $F(2, 104) = 3.7$ ,  $p = .028$ , partial  $\eta^2 = .066$ .

### Family Size

There was not a statistically significant main effect of family size:  $F(6, 99) = .758$ ,  $p = .605$ ;

Pillai's Trace = .044; partial  $\eta^2 = .044$ . However, the means show that the middle and youngest children from three-child-families have a higher mean score for companionship, empathy, and teaching / caring, and lower scores for rivalry, aggression / conflict, and avoidance, compared with siblings from two-child-families.

### Interaction

There is a significant interaction effect,  $F(6, 99) = 2.726$ ,  $p = .002$ ; Pillai's Trace = .281; Partial  $\eta^2 = .141$ .

Analysis of the dependent variables separately shows that there is only a significant interaction effect for companionship and avoidance.

*Companionship*:  $F(2, 104) = 3.025$ ,  $p = .015$ ; Partial  $\eta^2 = .078$ . When the older child is disabled the mean score for companionship is higher in dyads from two-child-families than in dyads from three-child-families. However, when the younger child is disabled or neither child is disabled the score for companionship is higher in dyads from three-child-families than in dyads from two-child-families.

*Avoidance*:  $F(2, 104) = 7.884$ ,  $p = .001$ , Partial  $\eta^2 = .132$ . When the older child is disabled and when neither child is disabled, the older child in the dyad displays lower levels of avoidance in two-child-families than in three child families. However, when the younger child is disabled the older child in the dyad displays lower levels of avoidance in three-child-families than in two-child families. In three-child families the older non-disabled child in the dyad displays more avoidance behaviour of their younger sibling when they are non-disabled than when they are disabled. Whereas in two-child-families, older non-disabled children display more avoidance behaviour towards younger disabled siblings than younger non-disabled siblings.

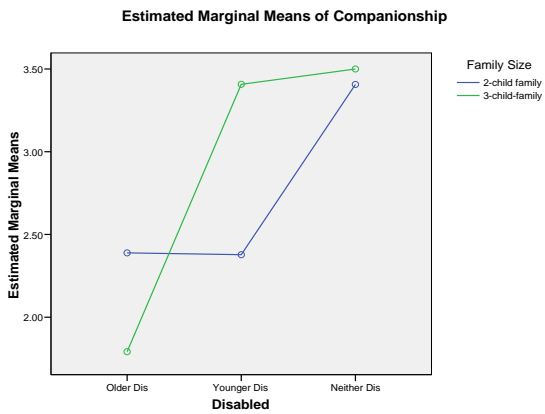


Figure 2. Interaction plot of Disability and Family Size for Companionship

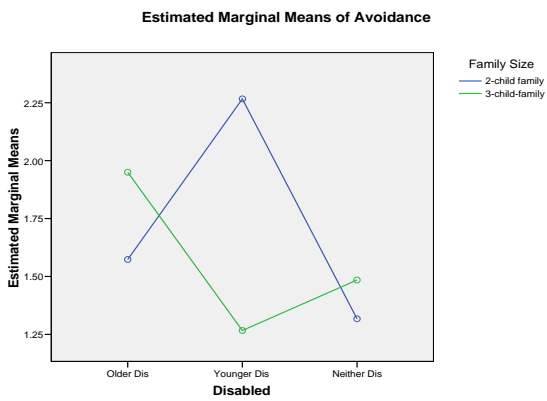


Figure 3. Interaction plot of Disability and Family Size for Avoidance

### **MANOVA 3 – Dyads from Two-Child-Families and Dyads of the Oldest and Middle Children from Three-Child Families**

Table 6: MANOVA table for Between-Subjects Effects

Source	Dependent Variable	df	Mean Square	F	Sig
Disabled	Companionship	2	11.963	18.114	.000*
	Empathy	2	17.465	15.316	.000*
	Teaching / Caring	2	20.935	34.970	.000*
	Rivalry	2	.295	.410	.665
	Aggression / Conflict	2	2.779	2.959	.056
	Avoidance	2	4.613	7.430	.001*
Family Size	Companionship	1	2.012	3.046	.084
	Empathy	1	.215	.189	.665
	Teaching / Caring	1	.026	.043	.836
	Rivalry	1	3.316	4.612	.034
	Aggression / Conflict	1	2.590	2.758	.100
	Avoidance	1	.807	1.299	.257
Disabled * Family Size	Companionship	2	.099	.149	.861
	Empathy	2	.726	.637	.531
	Teaching / Caring	2	.185	.309	.735
	Rivalry	2	3.287	4.571	.012*
	Aggression / Conflict	2	3.608	3.842	.024*
	Avoidance	2	.747	1.203	.304

\* Significant at the .025 level

#### Disability

There was a statistically significant main effect of disability on the combined dependant variables:  $F(12, 216) = 11.48$ ,  $p < .001$ ; Pillai's Trace = .78; partial  $\eta^2 = .39$ . 39% of the variability in the sibling relationships is accounted for by disability.

When the results for the dependent variables were considered separately, rivalry and aggression / avoidance failed to reach statistical significance.

*Companionship*:  $F(2, 112) = 18.11, p < .001$ , partial  $\eta^2 = .24$ . Post Hoc analysis revealed statistically significant differences between Older Child Disabled and Neither Child Disabled, mean difference =  $-.97, p = .001$ , and Younger Child Disabled and Neither Child Disabled, mean difference =  $-.95, p < .001$ , but not between Older Child Disabled and Younger Child Disabled, mean difference =  $-.02, p = .998$ .

*Empathy*:  $F(2, 112) = 14.32, p < .001$ , partial  $\eta^2 = .22$ . Post Hoc analysis revealed statistically significant differences between Older Child Disabled and Younger Child Disabled, mean difference =  $-.129, p = .003$ , and Older Child Disabled and Neither Child Disabled, mean difference =  $-1.26, p < .001$ , but not between Younger Child Disabled and Neither Child Disabled, mean difference =  $.02, p = .998$ .

*Teaching / Caring*:  $F(2, 112) = 34.97, p < .001$ , partial  $\eta^2 = .38$ . Post Hoc analysis revealed statistically significant differences between Older Child Disabled and Younger Child Disabled, mean difference =  $-1.45, p < .001$ , and Older Child Disabled and Neither Child Disabled, mean difference =  $-1.37, p < .001$ , but not between Younger Child Disabled and Neither Child Disabled, mean difference =  $.08, p = .946$ .

*Rivalry*:  $F(2, 112) = .410, p = .665$ , partial  $\eta^2 = .007$

*Aggression / Conflict*:  $F(2, 112) = 2.959, p = .056$ , partial  $\eta^2 = .050$

*Avoidance*:  $F(2, 112) = 7.43, p < .001$ , partial  $\eta^2 = .12$ . Post Hoc analysis revealed statistically significant differences between Older Child Disabled and Younger Child Disabled, mean difference =  $-1.77, p = .015$ , and Younger Child Disabled and Neither Child Disabled, mean difference =  $.81, p = .009$ , but not between Older Child Disabled and Neither Child Disabled, mean difference =  $.05, p = .944$ .

### Family Size

There was no statistically significant difference between dyads from two-child-families and dyads from three-child-families on the combined dependant variables:  $F(6, 107) = 2.36, p = .035$ ; Pillai's Trace =  $.12$ ; partial  $\eta^2 = .12$ . However, from looking at the means it

can be seen that dyads from two-child-families have higher scores on companionship, empathy, teaching / caring, rivalry and aggression / conflict, and lower on avoidance, compared with the oldest and middle children from three-child families.

### Interaction

There was not a statistically significant interaction between disability and family size on the dependent variables combined,  $F(12, 216) = 1.30$ ,  $p = .223$ , Pillai's Trace = .134, partial  $\eta^2 = .067$ . However, when considering the dependent variables individually, there is a significant interaction on rivalry and aggression / conflict.

**Rivalry:**  $F(2, 112) = 4.571$ ,  $p = .012$ , partial  $\eta^2 = .075$ . When neither child is disabled rivalry levels are higher in the dyads from the three-child-families. However, when the older or younger child in the dyad is disabled, rivalry levels are lower in three-child families compared with two-child families.

**Aggression / Conflict:**  $F(2, 112) = 3.842$ ,  $p = .024$ , partial  $\eta^2 = .064$ . When neither child is disabled aggression / conflict levels are higher in the dyads from three-child-families, but when one of the children is disabled the levels of aggression / conflict are lower in the dyads from three-child-families.

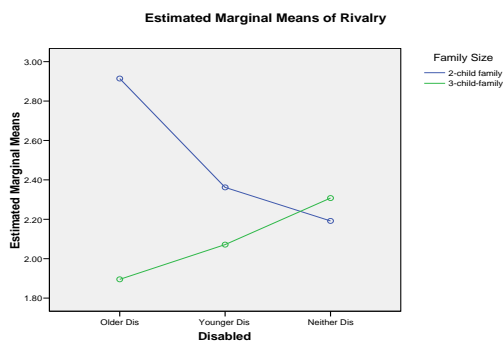


Figure 4. Interaction plot for disability and family size on rivalry

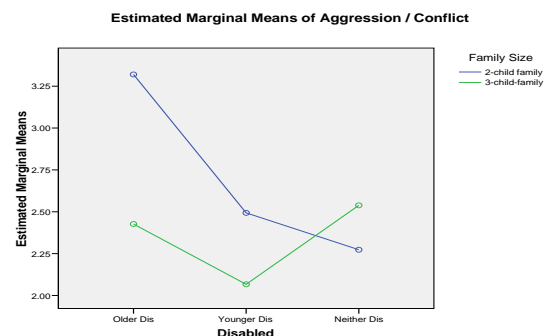


Figure 5. Interaction plot for disability and family size on aggression / conflict

## **Overall Findings of the MANOVAs**

### **Disability**

Disability accounted for between 26% and 39% of the variance in the measures of sibling relationships combined.

*Companionship:* The three MANOVAs showed that older disabled children show lower levels of companionship towards their younger sibling than older non-disabled children do. Two of the MANOVAs showed that older non-disabled children show lower levels of companionship towards their younger disabled siblings than non-disabled siblings.

*Empathy:* The three MANOVAs showed that older non-disabled children do not show different levels of empathy depending on whether their younger sibling is disabled or not. Older disabled children display less empathy towards their younger sibling than non-disabled children do.

*Teaching / Caring:* The three MANOVAs showed that disabled older children teach and care for younger children less than older non-disabled children do. Older non-disabled children's level of teaching / caring was unaffected by whether or not their younger sibling was disabled.

*Rivalry:* Only the MANOVA involving dyads from two-child-families and the dyads of oldest and youngest children from three-child-families found any significant results regarding rivalry and disability. The older disabled children displayed higher levels of rivalry towards their younger siblings than non-disabled children did towards their non-disabled younger siblings, but not different to older non-disabled siblings towards their younger disabled siblings.

*Aggression / Conflict:* MANOVAs 1 and 2 found that older disabled children display more aggression towards their younger siblings than non-disabled older children do. Older non-disabled children's level of aggression was unaffected by whether or not their younger sibling was disabled. MANOVA 3 failed to find significant differences.

*Avoidance:* MANOVAs 1 and 3 found that non-disabled children display higher levels of avoidance towards their younger sibling when they are disabled than when they are not.

In addition, MANOVA 3 found that older disabled children avoid their non-disabled sibling less than older non-disabled children avoid younger disabled siblings. MANOVA 2 failed to find significant differences.

### Family Size

The only significant findings were that the levels of teaching / caring are higher in the dyads of the oldest and youngest children from three-child families than siblings from two-child-families, and rivalry is higher amongst siblings from two-child-families than the oldest and youngest children in three-child-families.

### Interaction between Disability and Family Size

Older non-disabled children show higher levels of companionship towards younger disabled siblings when they are from three-child-families than two-child-families. Older non-disabled children avoid younger disabled siblings less in three-child-families than two-child-families. In three-child-families, when one of the children in the dyad is disabled there are lower levels of rivalry and aggression / conflict, compared with two-child-families. Older disabled children showed higher levels of companionship and lower levels of avoidance in two-child-families than three-child-families.

### **T-tests**

Two independent samples t-tests were performed to test the hypothesis that there would be a difference in the relationship between two non-disabled children from three-child-families when the third child was disabled (group 1), in comparison to the third child being non-disabled (group 2). The comparison was in terms of companionship, empathy, teaching / caring, rivalry, aggression / conflict, and avoidance. The data was again split into that for the oldest and youngest children, middle and youngest children, and oldest and middle children. This was to avoid children being represented in more than one score in analyses. It was not possible to run the analysis for the oldest and youngest children as the numbers in group 1 were too small.



The independent samples t-test for the middle and youngest children showed no significant difference between the non-disabled children's relationship when there was a disabled child in the family (group 1) and when there was not a disabled child in the family (group 2) in terms of companionship (1:  $M=3.24$ ,  $SD=1.07$  and 2:  $M=3.64$ ,  $SD=.78$ ;  $t(24)=-.109$ ,  $p=.29$ ), empathy (1:  $M=3.53$ ,  $SD=.79$  and 2:  $M=4.08$ ,  $SD=.77$ ;  $t(24)=-1.71$ ,  $p=.1$ ), teaching / caring (1:  $M=2.94$ ,  $SD=.68$  and 2:  $M=3.24$ ,  $SD=.66$ ;  $t(24)=-1.05$ ,  $p=.303$ ), rivalry (1:  $M=2.67$ ,  $SD=.91$  and 2:  $M=2.15$ ,  $SD=.76$ ;  $t(24)=1.53$ ,  $p=.138$ ), and aggression / conflict (1:  $M=2.56$ ,  $SD=.71$  and 2:  $M=2.29$ ,  $SD=.77$ ;  $t(24)=.84$ ,  $p=.409$ ).

There was significantly more avoidance behaviour displayed by non-disabled children towards their non-disabled sibling when the other child in the family was disabled ( $M=1.8$ ,  $SD=.59$ ) than when the other child was also non-disabled ( $M=1.32$ ,  $SD=.44$ ;  $t(24)=2.355$ ,  $p=.027$ ).

The independent samples t-test for the oldest and middle children again showed no significant differences between the non-disabled children's relationship when there was a disabled child in the family and when there was not a disabled child in the family in terms of companionship (1:  $M=3.0$ ,  $SD=.93$  and 2:  $M=2.99$ ,  $SD=.80$ ;  $t(24)=.014$ ,  $p=.989$ ), empathy (1:  $M=3.53$ ,  $SD=1.5$  and 2:  $M=3.64$ ,  $SD=1.05$ ;  $t(24)=-.164$ ,  $p=.871$ ), teaching / caring (1:  $M=3.25$ ,  $SD=.66$  and 2:  $M=2.84$ ,  $SD=.80$ ;  $t(24)=.849$ ,  $p=.404$ ), and rivalry (1:  $M=1.95$ ,  $SD=.58$  and 2:  $M=2.35$ ,  $SD=1.05$ ;  $t(24)=-.645$ ,  $p=.525$ ).

Unlike the analysis involving the middle and youngest children, this analysis found a significant difference regarding aggression / conflict. Non-disabled children display significantly less aggression / conflict towards their non-disabled sibling when the other sibling is disabled ( $M=1.67$ ,  $SD=.31$ ) than when the other sibling is non-disabled ( $M=2.65$ ,  $SD=1.15$ ;  $t(12.367)=-3.312$ ,  $p=.006$ ).

In opposition to the analysis involving the middle and youngest children, this analysis revealed that there was significantly less avoidance behaviour displayed by non-disabled children towards their non-disabled sibling when the other child in the family

was disabled ( $M=1.07$ ,  $SD=.12$ ) than when the other child was also disabled ( $M=1.89$ ,  $SD=1.12$ ;  $t(23.979)=-3.374$ ,  $p=.003$ ).

### **Qualitative Results and Discussion**

In this study three core categories emerged from the data that were identified as explaining the effects on children's sibling relationships: the manifestation and consequences of the one sibling's disability, the development of the other sibling and the familial situation in which the relationship occurs. The manifestation of the disability formed barriers to, and limitations in, the development of the relationship. It also caused differences in the relationship, compared to relationships between two non-disabled siblings. The severity and number of these challenges or complications was in line with the severity of the disability. As the non-disabled child develops, their view of these challenges and their ability to work around and overcome them affects the quality of the relationship. The familial structure, such as the number of children, and their age-spacing and birth order influences the sibling relationship, by affecting the impact of the disabled child on the other child's life.

### **The Disability's Manifestation and its Consequences**

**"He has a good relationship with his brother as far as he is able to"** (6:9:235)

The disabled children's level of understanding, communication and physical ability resulted in barriers and limitations in their sibling relationships.

**- Understanding – "I think he knows me well and like realises who I am"** (11:3:76)

The disabled child's level of understanding was expressed as important in every interview with non-disabled family members. Limited understanding questions the meaning of the relationship, which presents a potential barrier to the formation of a deep relationship. The cognitive difficulties that some children have, paired with the absence of language makes it difficult for families to know what the child understands about family and relationships.

**Peter used to say ‘does he know that I’m his brother?’ And that was a big Issue for him** (6:19:426)

A further limitation that the disabled child’s reduced level of understanding presents is that it limits the number of topics and the frequency with which their siblings talk to them. This makes it more difficult for them to form a meaningful relationship.

**We’re sort of close, but I can’t really tell him things ‘cause he doesn’t really understand.** (3:3:46)

The limited understanding of the disabled child puts their relationships at a disadvantage. This, along with limited communication, requires the other member of the relationship (in this study, the sibling) to invest more effort in the relationship.

Another effect on the relationship, partly as a result of understanding, is that younger siblings can take on a role more typical of an older sibling. One family talked about their 5-year-old son being pleased by the progress his 12-year-old disabled sister makes.

This confusion over roles can further complicate the relationship.

#### **- Communication – “I wish Liam could talk to me”** (12:4:118)

Communication was also expressed as important in every interview with non-disabled family members and is a crucial component of sibling relationships. When a child cannot reciprocate communication, some family members reported this to result in people talking to them less. One of the children recognised that he did not talk to his disabled sister enough and felt that if he talked to her more their relationship would improve. The reciprocity that is missing from the relationships was viewed as a major obstacle to overcome because *“it all boils down to feedback”* (9:9:183). Communication was a major theme that was prominent throughout the analysis process.

**I think at the moment he views Claire as ... ‘it’s not worth me communicating with her to any real great degree because I will only have to conclude my own answer’.** (9:9:193)

One of the children was in the process of learning to use a communication aid and her parents viewed this as having the potential to improve her relationships with her siblings. They felt that once she is able to actively participate in a conversation the other children will be more interested in communicating with her. Another family’s hopes for the improvement of relationships also rested on communication

**I think he (Ben) would love a better relationship with Michael and I’m hoping that may come as Ben can communicate better** (10:16:472)

While it is often discussed about the non-disabled children's feelings about their sibling and the impact on their life, sibling relationships are important to the disabled children too and their non-disabled siblings impact on their life.

***he's had a little friend for the last few years and it's made his life much nicer*** (10:16:470)

When children are non-verbal they need to find alternative ways of communicating. These children seemed to have a desire to increase their interaction and strengthen their relationship with their sibling through tactile contact. This appeared to be true of all the families interviewed with non-verbal children.

***when Michael withdrew completely from Ben ... Ben came over and put his head on Michael's lap. It was a really amazing moment ... I could see what he was saying ... 'I know you don't want anything to do with me but I really love you please please'.*** (10:7:173)

**- Physical Ability – “there's not an awful lot they can do together”** (6:6:123)

In addition to the understanding and communication difficulties of the disabled child, their limited physical ability also reduces interaction. One way in which it was a barrier to the relationship was through limiting the activities the siblings could engage in together.

***He can't play football with his brother and do the normal kind of brotherly things that brothers do*** (6:10:227)

Physical differences caused by the disability, such as incontinence or dribbling, separated the children and led to reduced interaction.

***She's very conscious of the fact that he's incontinent, that bothers her a lot ... and it separates her from him because she doesn't like that*** (10:22:680)

These physical differences inhibit the relationship in two ways. It makes the non-disabled sibling keep a distance from the disabled child, and this prevents the means used by non-verbal children to try to form or maintain their sibling relationships – tactile contact.

In addition to the disability presenting barriers to the relationship and causing limitations, it also causes differences in the relationship and adds difficulties that other children would not have to contend with.

**- Aggression – “how can you establish a good relationship if someone’s hurting you?”** (10:8:212)

Some disabilities can result in the individual being physically aggressive. This was the case in one of the families interviewed and provided an additional barrier to the relationship. This was possibly the most difficult barrier to overcome because it resulted in the children being “*frightened*” of their sibling, which limited the contact the siblings were prepared to have with him. The physical attacks also caused other negative feelings, making it much harder to establish a good relationship and further limited contact that the siblings wanted to have with him.

*I think Michael would love to communicate more with Ben, would like to have a relationship with him, but there’s a massive barrier about the physical attacks* (10:21:659)

**- Restrictions – “Can we do that with the wheelchair?”** (8:5:106)

In addition to the disability restricting the relationship, it can also restrict the family in terms of activities they can pursue and this can lead to negative feelings, such as resentment, which impact on the quality of the relationship. When the children are wishing that their sibling was not there or was different it complicates the relationship because it creates dissonance.

**- Desire to be Normal – “I don’t think anybody really wants it that way”** (8:12:532)

Every parent made reference to ‘normal’. This ranged from attempts at normalising the situation, “*he treats him as a normal brother*” (2:3:63), to wishing for a normal situation, “*I still have this desire in the pit of my heart that wished it was normal*” (8:12:533). No child referred to ‘normal’, but the parents wish for ‘normal’ was for their non-disabled children and assumed to be their thoughts too. However, as no child explicitly expressed a desire for “normal” it is not entirely clear how true this is. If the children are yearning for normality this supports the previous sub-category.

**- Conflicting Emotions – “he’s got very mixed feelings about Ben”** (10:3:65)

Children with disabled siblings experience confusing or conflicting emotions. For example, from the interviews it is clear that children do sometimes feel and express negative affect towards their disabled sibling. While for some the disability did not

appear to have an effect on the evaluation of the emotion, for other children, shame and guilt followed for being negative towards someone with a disability.

***Sometimes he has got angry with things that Liam has done...I think he's been embarrassed with the anger that he's felt sometimes ... and I think he's felt guilty at feeling angry*** (6:13:312)

Also, some children felt very mixed emotions about their sibling. These mixed and confusing feelings make the relationship even more uneasy, and less natural than typical sibling relationships.

**- Care – “another child with fresh eyes would think it is a bit odd, all the stuff that Peter does”**

(6:24:528) Care-giving is a popular topic in the literature on siblings of disabled children. In this study there was great variation across families as to what the children did. In some families the siblings helped with all aspects of personal care for the disabled child. In other families, the children didn't do any of the personal care. Other children were expected to look out for their disabled sibling in the home. As well as the parent's expectations differing widely across families, the children's view to care differed greatly, even within families. It was clear, however, that care is an issue in the sibling relationship. Even when the children are not expected to partake in a carer role, the needs of their sibling are still there and make the relationship differ. Although not all children were involved with physical care, they were still given a degree of responsibility. There were lots of references to helping behaviour displayed by the non-disabled siblings. When a child cannot communicate verbally some siblings will do it for them, some children were reported to “become her voice” (8:15:687). It is not clear from the data what effect care-giving has on the quality of the relationship.

**- Protectiveness – “Mark is ... very, very protective of him, always has been”** (2:3:60)

Parents described their children as being ‘protective’ of their disabled sibling. While it is not uncommon for children to be protective of younger siblings this was heightened and younger siblings were sometimes described as protective of their older disabled sibling. This links to, and supports, the idea of role confusion discussed in the sub-category of restrictions. Some of the parents referred to this protectiveness only occurring ‘outside’ and not in the home or within their relationship.

One child worried that when he introduced his friends to his disabled brother they might *'take the mick out of him'* (11:1:14).

**- The Future – “I’d help him every step of the way” (4:4:83)**

Siblings of disabled children think about the future. One sibling explained the difference with having a disabled sibling, if his brother was not disabled he said that *“when he got to a certain age he might be able to look after himself”* (11:2:69), but because his brother is disabled he has always got to be there for him. In the literature there is a sense of a great burden of future care placed on the non-disabled siblings by their parents.

However, while there does appear to be a burden of morals and conscience, no parents wanted or expected their children to be physically responsible for future care. This had only been discussed between parents and children in one of the families and this was as a result of the sibling raising it. Other families had opted not to discuss it.

*I would not want Peter to grow up feeling that Liam would be his responsibility... but I haven't said it explicitly because I'm worried that if I do say it, it might trigger some obligation in his head and I don't want that* (6:20:454)

While not wanting the non-disabled siblings to be responsible for care, parents did have certain hopes and expectations for the future. Parents hoped that the non-disabled children would over-see their siblings' care and make sure they were getting the care they needed wherever they were living.

*I'm hoping ... that they'll always put the extra bit of look out for Stuart.* (1:6:121)

The parents wanted the children to remain in contact and be a part of each others lives.

*I want Peter to have a normal life, whatever that is, but I would obviously still like it to involve his brother as far as is possible.* (6:22:484)

## **The Non-Disabled Sibling's Development**

*“The relationship has more depth as he's matured”* (12:1:13)

As the non-disabled sibling develops, their feelings about their sibling's disability and the consequences change. Also, their feelings about the relationship change.

*I think that now he's older he's just accepted that the relationship that he has with Liam is different to the relationship he sees his friends having with their brothers.* (6:15:322)

This change, brought about by development, affects how the children respond to the barriers, limitations and differences caused by the disability's manifestation, which impacts upon the relationship.

In the three-child families, the age difference between the non-disabled children showed very clear differences in the relationship that they have with their disabled sibling. When the siblings are younger they have more in common with the disabled child and their ability levels are more closely matched. However, as the non-disabled child develops they advance past the capabilities and interests of the disabled child. This demonstrates the idea of role confusion or reversal.

***Laura is very fond of Ben, they share quite a lot of things together and that's possibly because she's so young ... although she's beginning to leave him behind (10:9:50/268)***

These findings support the notion of the involvement of a developmental process.

Parents were aware that the younger non-disabled child's relationship with their disabled sibling was following the same path as the older non-disabled child's. This suggests there is a common developmental influence.

***The relationship she has with Simon now is the same as when Luke was his age. (8:14:627)***

When the children are younger they are less aware of, or concerned by, the physical differences.

***Simon will just kiss her and love her, Luke is very aware that often she's very wet and she's dribbly ... he never used to be worried, but now ... he's stopped having that close contact (7:2:68)***

Children seem to go through a process of realising that their sibling is different and therefore their family is different. They seem to begin with a naive acceptance of their sibling.

***I would say that at the moment she's hardly conscious of his disability. It's so normal to her and it doesn't adversely affect her life that she's not realised how rare it is (10:13:381)***

Then, as the child develops they learn that their sibling is different to them.

***When they were both under 5, and Peter didn't really understand about Liam's disabilities and Liam would do certain things and Peter would say, 'oh you never tell Liam off' ... not 'til he was about 6 or 7 that he really understood that Liam wasn't doing things on purpose. (6:10:239)***



Even once they are aware that their sibling is different, they do not necessarily realise how rare it is to have a disabled sibling in the family. As one parent phrased it, *“they only know what they’re used to”* (9:5:93). Through exposure to other children and families as their understanding matures they realise their family is different to many others because their sibling has a disability.

***he thought lots of families had children like Claire and when he ... realised that nobody else had a sister like his sister that was quite odd for him.*** (8:8:392)

After they have realised the difference, some children go through a period of becoming embarrassed, such as when telling new friends that they have a disabled sibling, or when their sibling is attracting negative attention in public or the difference in the way their family do things, such as the adapted vehicles they need to use for the wheelchair.

***I think as Peter has got older, he’s started to become ... a little bit embarrassed about having a brother like Liam ... although he’s gradually getting over that now ... as he’s matured himself and has learnt how to deal with it.*** (6:9:193)

Some children withdraw from their sibling or distance themselves in other ways.

***When he was very young and Ben was very young he really tried to make friends with him for quite a long time and got very upset when he was hit ... he did try for quite a long time and then withdrew completely ... I mean there were several years where he didn’t acknowledge his presence. I mean he wasn’t stroppy about it at all he just didn’t bother.*** (10:22:671)

This period of embarrassment or distancing seems to come at the time when the children are learning about the disability and trying to understand it. One child explained that it was worrying telling friends about having a disabled sibling when they were *“old enough to know about it but not really to understand it”* (11:1:25).

Siblings’ understanding of the disability changes over time and becomes more sophisticated. At a young age children have difficulty understanding the concept of disability and why their sibling is not walking or talking, or why they are aggressive toward them.

***He just couldn’t grasp that concept, that a person had legs and the legs looked normal and not damaged but they weren’t going to function like normal legs*** (12:3:74)

Some children also have an expectation that their sibling will be “getting better”.

***Before his understanding was as developed as it is now he'd have an expectation that Liam would be getting better ... I think there was a time when he was psychologically hanging around thinking that their relationship would change in that they would become like normal brothers. (12:1:4)***

This links to the idea that emerged in the first category of the relationship being complicated when wanting the other person to be different. The acceptance that comes through the non-disabled child's development would add ease to the relationship and allow the relationship to improve in quality. Understanding the disability can help them accept their situation, learn about who their sibling is, come to terms with it and form a relationship with realistic expectations. As the non-disabled child becomes less egocentric they are able to see their siblings disability from others' perspective and realise the impact that it has on other people's lives, especially their sibling's, and this impacts on how they perceive their sibling, the relationship and how much effort they invest in it.

***Michael, now he's older ... rather than just hating Ben for the fact that Ben can't be a good brother ... he's now understanding the impact on Ben's life from a slightly more mature perspective and therefore he's trying now to ... form a relationship with him. (10:3:70)***

The children seem to go through a process of developing their understanding of the disability, its manifestation and its impact and learning ways of coping with or working around the differences. Through this process they return to a state of acceptance similar to that they had as young children, but rather than the naive acceptance, it is an understanding and informed acceptance.

### **Familial Situation**

***"at that point, my life was completely absorbed with Ben" (10:8:150)***

There are other factors that affect the relationship less directly; the size of the impact that their sibling's disability has on their own life as a result of birth order and age-spacing, family-size, and the acceptance of the disability within the family. From the interviews with the three-child-families it is clear that birth order influences the size of the impact that the disabled child has on their siblings.

***There's quite a dramatic difference it seems to me between the impact of Ben on her as a younger person coming along after he was born and Michael whose life was significantly affected at a very important time when Ben was born (10:2:36)***

Children born once the parents have come to terms with the fact their child is disabled seem to experience less of an impact and a reduced awareness of the disability.

Children close in age to the disabled child experience more of an emotional impact partly because they experience their parents going through an acceptance process and learning to cope with their child being disabled. They also experience a more practical impact because they have to attend hospital appointments with their sibling, and receive less of their parents' time and attention.

***When I had Luke Claire was only two ... he saw me go through a lot, he saw me cry and he saw me not cope ... Luke spent his whole first two or three years in and out of hospitals with us ... Simon's not seeing the same because Claire's now that bit older ... now we're more living it ... so Simon doesn't pick up on the same things that Luke does. (8:4:189)***

However, in these families the third born child was still very young and it is possible that any effects had not manifested yet.

A difference with the third born child is that they have always had a 'normal' sibling and so have not had the yearning for that like the older children. Also, they have always had someone to share the experience with.

In all of the three-child-families the two non-disabled children were said to have a better relationship with each other than either of them did with their disabled sibling. In two of the three-child-families (the families where the disability was more severe) the two non-disabled children were described by their mothers as having a better relationship than would be expected.

***They love being together, they're constantly playing together. In fact they probably play together more than most probably a 5 year old and 10 year old would normally (8:7:296)***

This relationship is very important to both the parents and the older child. The arrival of a non-disabled sibling made the older children feel better about having a sibling with a disability and the things that they missed out on because of it. Now they have the opportunity to have a "normal" sibling relationship.

***They've been able to play together ... the silly mucking about that only siblings do... I'm so thrilled ... I think she's had a dramatic impact on his life and he's got a sibling he can play with now and that's taken a massive amount of resentment away (10:12:356)***

These two families' decision to have a third child was predominantly for the benefit of their non-disabled child. The mothers in these families talked of providing a sibling for the child to engage in family activities with, which the disabled child could not do.

Another reason expressed for deciding to have a third child was to share the future responsibility of the disabled sibling and to prevent them being alone.

***If Claire had been fine we would have stopped at Luke, the reason we didn't ...when he was 5 or 6 I can remember him saying to me, don't ever worry about Claire, Mummy, I'll look after her when I'm older ...there's no way you can expect one individual to be responsible (8:4:172)***

The findings suggest that it is not purely the disability in itself that characterises the relationship. The manifestation of the disability and the differences that this causes, both in the child and in the relationship, are clearly important. However, the data shows that other factors are equally, if not more, important to the quality of the relationship. How the non-disabled child responds to and feels about their sibling is, in part, a product of the impact that their siblings' disability has on their own life. Birth order, age-spacing, family-size and the acceptance within the family influence this, as does the child's own development. The results do strongly suggest a developmental process is involved in the non-disabled child's side of the relationship. As the child matures their feelings about their disabled sibling change; moving from a naive acceptance to an informed acceptance. During this process there seems to be a distancing effect through, for example, withdrawal, embarrassment, or resentment. Some children were 'sad' about their sibling's condition. The negative emotion that the children feel, combined with the extra effort they need to invest due to their sibling's limited communication and understanding makes the relationship very hard for them. The child's development leads to acceptance of their sibling and the situation it places them both in. This appears to reduce the child's mixed feelings; wanting a good relationship, but at the same time resenting them, wishing they were different or blaming them for the way things are. More

research is needed to know whether this developmental pattern is representative, to build on it, and investigate age and how it fits with the general course of child development. Seligman (1983) identified a developmental course in the concerns that children have; younger children are concerned about “catching” their sibling’s disability, whereas adolescents are concerned about parenting disabled children. Thus, it seems probable there is also a developmental attribute in their relationship.

While the aim of this research was to move away from the focus of much previous research – the impact of having a disabled sibling on the non-disabled children – parental concerns about this did emerge. Also, it seems that the impact on the non-disabled child and the relationship between the two children are to a degree inseparable. The impact on their life creates certain feelings which are then brought to the relationship, for example resentment. A useful development in this area would be to investigate how to eliminate, reduce or treat the negative impact. Would improving the relationship between the children reduce the negative impact? It would be interesting and useful to discover the link between relationship quality and the impact of the disability on the non-disabled child. It is important, however, to remember that the impact is not solely negative. Parents reported many positive outcomes, such as the non-disabled children being, and growing into, compassionate and caring individuals. The relationship between the disabled and non-disabled siblings is of concern to parents, *“I’d love to know how you make it stronger between a disabled and an ordinary sibling”* (8:14:647). Despite this, it is not something that any of the families had received professional help or advice about.

## **Discussion**

### **Quantitative Discussion and General Conclusions**

In answer to the first research question: does disability affect the levels of companionship, empathy, teaching / caring, rivalry, aggression / conflict, and avoidance

in children's sibling relationships?: the quantitative component of the study demonstrated that these six factors were all affected.

*Companionship:* Sibling dyads containing a disabled child have lower levels of companionship. The companionship scale asks questions such as “gets ideas for things they can do together” and “makes plans” that include their sibling. This may be beyond the cognitive capabilities of the disabled children. The scale also asks about sharing secrets, this is not something a non-verbal child can do in the typical sense. Does it mean that if these attributes are beyond the scope of someone's abilities their relationships are necessarily lower in quality? Comments from the interviews such as, “*there is play, but it's not ordinary play*” and “*close but different*”, suggest that children are able to adapt or improvise when things cannot be done in the ‘normal’ way. However communication and understanding were highlighted as very important in relationships. Older non-disabled children showed lower levels of companionship towards their younger sibling if they were disabled. One possible explanation for this is the missing reciprocity within the relationship, as discussed in the interviews. The children may be investing less in the relationship as a result of not receiving in return. It would be interesting to have bi-directional results here to see the levels of companionship displayed by disabled children to older siblings, to see whether this finding is a result of reciprocity. Another possible explanation for the reduced companionship on the part of the non-disabled sibling is the increased negative behaviours displayed by the disabled child, such as rivalry and aggression / conflict.

*Empathy:* Older disabled children showed less empathy towards their younger siblings. There were a high percentage of children with Autistic Spectrum Disorder (ASD) in the sample. It is well known that children with ASD suffer a deficit in Theory of Mind, which is necessary for empathy (Baron-Cohen, 1995). It would be interesting to see the results with ASD excluded from the sample and find out what effect disability, without this impairment has on empathy.

Older non-disabled children do not show different levels of empathy dependent on whether their younger sibling is disabled or not. This suggests that non-disabled children

do not feel a greater level of sympathy for younger disabled siblings. However, it is possible that parents with disabled children are answering the questions differently to parents without children with disabilities. Parents of children with disabilities may be answering the questions in terms of how much empathy they show with regards to their sibling's disability or in comparison to the amount shown by their disabled sibling.

*Teaching / Caring:* Disabled older children teach and care for younger children less than older non-disabled children do. Bi-directional data would again be useful to see whether this element is absent in relationships when the older child is disabled or whether the younger sibling takes on the role. In the interviews the latter was found to be the case. Older non-disabled children's level of teaching / caring was unaffected by whether or not their younger sibling was disabled. However, the qualitative component revealed that children care for disabled siblings and help them more frequently than they would non-disabled siblings. It is possible that combining teaching and caring obscured the result.

*Rivalry:* It was found that older disabled children displayed higher levels of rivalry towards their younger siblings than non-disabled children did towards their younger siblings (although this was only significant in one of the analyses). Older non-disabled children's rivalry towards younger siblings did not differ dependent on whether the younger sibling was disabled or not. This suggests that non-disabled siblings do not reciprocate the negative behaviours their disabled siblings display towards them. However, the behaviour of younger siblings towards older siblings was not tested and so it is only an assumption that younger disabled children show increased levels of rivalry as older disabled children do.

*Aggression / Conflict:* Older disabled children displayed more aggression / conflict towards their younger siblings than non-disabled older children did. Older non-disabled children's level of aggression was unaffected by whether or not their younger sibling was disabled. This again suggests that non-disabled children do not reciprocate their disabled sibling's negative behaviour. However, they may be reducing their positive behaviour as a result, as suggested by the companionship finding.

*Avoidance:* It was found that children display higher levels of avoidance towards disabled younger siblings than non-disabled younger siblings. This could be due to the increased negative or decreased positive behaviour disabled children display towards their siblings. Caution needs to be applied to this interpretation however because it is based on the assumption that the younger disabled children display the same behaviour as the older disabled children do, which is not necessarily the case. Another possible explanation is that the children are embarrassed by their sibling's behaviour or disability. Both of these explanations fit with the data from the qualitative component.

The second research question was: does family size affect the impact that the disability has on the sibling relationship? In general, family size did not show a consistent significant effect on sibling relationships. However, when considering the relationships across the different disability conditions, family size did have an effect. Older non-disabled children from three-child families showed more positive behaviour towards their younger disabled siblings and less negative behaviour than children from two-child families. This suggests that the presence of another sibling improves the relationship between the non-disabled children and their disabled sibling. Data from the qualitative component supports this and highlighted some possible reasons, such as having a 'normal' sibling reduced the resentment and sadness about their disabled sibling. However, older disabled children displayed more avoidance and less companionship toward younger siblings in three-child-families, compared with two-child-families, as is the case when neither child is disabled. This suggests that it is just the non-disabled child's behaviour towards the disabled child that is improved, rather than the relationship. However, disabled older children displayed less rivalry and aggression / conflict towards younger non-disabled children in three-child-families.

The data was not strong enough to draw conclusions regarding the third research question: in three- child families where one has a disability, does the relationship between two non-disabled siblings differ from two siblings when the third child is also non-disabled? Dyads consisting of the oldest and middle children in three-child-families when the youngest child is disabled had a lower aggression / conflict score and a lower



avoidance score than when the youngest child was not disabled. The opposite was found for avoidance with the middle and youngest children. The findings suggest that the relationship between two non-disabled siblings is affected by having a disabled sibling; however, more research with a larger sample would be needed for clarity of the effect. In the qualitative component non-disabled siblings who also had a disabled sibling were described as having a better relationship than would be expected,

### **Methodological Considerations**

In general, the quantitative and qualitative findings are consistent and similar themes did emerge from the two methods of enquiry. However, the focus is different. The quantitative component of the study identifies which areas disabled children's sibling relationships differ in and how. The qualitative component focuses more on why these differences occur and other factors that influence the relationship. The mixture of quantitative and qualitative methods was found to be a useful approach.

When interpreting the results of the quantitative component there are methodological considerations to be aware of. Firstly, different disabilities, which all have different manifestations and severities were included. This could obscure the findings. However, even with the sample being limited to one disability the spectrum would still be vast, such as is the case with ASD or Cerebral Palsy. Secondly, the data was not bi-directional. It only enquires about the behaviour of the older child within the dyad towards the younger child. There are two problems with this. It is not possible to know what, of this behaviour, is the product of the younger child's behaviour. Also, it does not reveal how younger children respond to older disabled siblings, or how younger disabled children respond to older non-disabled siblings. Thirdly, the conditions were not completely matched in terms of age, age-spacing, gender, socioeconomic status or IQ. A larger scale study would be needed to match all of these aspects. To match the sample, the age and gender of the disabled child would need to be matched, then the age spacing between the siblings, and the gender and age of the sibling. Also the type and severity of the disability would need to be matched in the disabled condition.

### **Future Research**

This study is useful in elucidating the specific areas in which sibling relationships with disabled children differ by focusing on different features (companionship, empathy, teaching / caring, rivalry, aggression / conflict, and avoidance). However, it does not separate different disabilities. Future studies are needed to expand on the findings of this research by looking at different disabilities separately to determine the specific effects of different disabilities on specific features of sibling relationships. The sample size in this study and the high level of co-morbidity did not allow for such an investigation. Therefore, there are questions that remain unanswered. A larger scale replication of this study separating different types of disabilities would help to understand the specificity of the effect on the relationship. Communication and understanding were both identified as important aspects of the relationship, and deficits in these were recognised to be major challenges to the development of a meaningful relationship. Conducting this study with children with a physical disability, but communication and understanding unaffected, would show what impact is due to the difference in physical ability, and what impact disability has on sibling relationships that is not due to communication and understanding. It would be interesting to learn the affect on sibling relationships when one of the children has a disability, but not one that directly impairs any aspect of social interaction, understanding and communication. It would also be useful to separate communication from understanding in the investigation. However, without communication it is difficult to assess how much individuals understand. Also, the siblings in the study found it difficult to contemplate that a child could understand if they couldn't answer. So even if the child could understand, it would be necessary to ensure that the sibling is aware of their level of understanding. Knowing more about the specificity of effects caused by different disabilities would be informative with regards to whether the relationship is different purely (or largely) because one of the children are disabled or whether it is because of the way in which the disability manifests itself. Observational measures could methodologically strengthen this area of research, as rating scales are open to informant bias and interviews are only as successful as the

interviewee's ability to reflect on their experiences. Only one disabled child was interviewed in this study. It is not easy to get their views and experiences as first hand information as many are not able to be interviewed and those that are, are likely to have limited comprehension and language skills, unless the disability is purely physical. Observation could partly overcome this downfall, by viewing their behaviour towards their sibling. A longitudinal study of siblings would increase understanding of the link between the non-disabled child's development and their relationship with their disabled sibling as was identified in the qualitative component. Investigations into how to improve sibling relationships involving children with disabilities are also needed.

### **Practical Implications**

It is important that professionals understand the importance of sibling relationships and the effect that disability can have on them so that they can incorporate this knowledge into their approach when working with such families. Interviewed parents expressed a desire to strengthen the relationship between their disabled and non-disabled children, yet none had received any help with this from professionals, despite the number that had been involved with their disabled child. Professionals involved with disabled children need to recognise and consider the impact of the disability on all the family members not just the individual with the disability. The more that is known about the nature of sibling relationships involving children with disabilities, the more empowered professionals could be to either guide parents in helping their children in their relationship with one another or help the children directly. As research in this area advances and further discoveries are made about the processes that these children go through and the challenges they encounter in their sibling relationships, appropriate training for professionals working with such families can be developed.

As demonstrated by previous research (although contradictory findings do exist) having a disabled sibling can impact negatively on children's development (Burke & Montgomery, 2003; Sanders, 2004; Waldinger et al., 2007). This, also, is not addressed by professionals working in the field (Edwards et al., 2006). It seems clear that the

needs of the family are not fully considered when helping the disabled child, despite the knowledge that all family members are affected. The interview data suggests that people strive to meet the needs of the disabled child, while their siblings are forgotten or left to cope, at an age when they are too young to understand or articulate their feelings. Individuals who have received support for themselves are more likely to stay involved in their disabled sibling's life (Strohm, 2002), which has been shown to be beneficial to well-being later in life (Cicerelli, 1989).

### **Conclusion**

In sum, this research has shown that sibling relationships are affected by disability on the 6 dimensions tested; companionship, empathy, teaching / caring, rivalry, aggression / conflict, and avoidance. The manifestation of the disability causes challenges in the relationship and requires a higher investment from the non-disabled sibling. The non-disabled child's development influences their attitude towards this, as does the familial situation which they are in. Sibling relationships are important to well-being across the lifespan (Cicerelli, 1989), but are not a subject of training for professionals working with families with disabled children (Edwards et al., 2006). Therefore, the next obvious step for research is finding how to improve sibling relationships involving disabled children.

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